

## BOOK REVIEWS

### **Toxic Plants and Animals — A Guide for Australia**

Edited by Jeanette Covacevich, Peter Davie and John Pearn

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This book is the first attempt at a comprehensive review of Australia's toxic plants and animals. Because this volume is a compendium of research articles from diverse fields, the process of reviewing it has necessitated a combined input from a number of reviewers. Most of the chapters have therefore been dealt with as a separate entity.

The section on plants is a relatively small part but is reasonably adequate in dealing with poisonous plants which occur in the Northern Territory. The main chapter lists commonly encountered toxic plants arranged in family groups. This method of classification is very useful when researching a plant not included, as many similar poisonous properties and compounds often run in family groups. Information supplied has been obtained from published sources, unpublished records from the Queensland Herbarium and the authors' experiences, mainly from anecdotal evidence. Also there are six specific chapters, including mushrooms and toadstools, hallucinogenic fungi and very appropriately one on Oleander poisoning. As "Yellow Oleander" is potentially our most toxic plant when ingested, the chapter is a significant reference on this widely distributed shrub. All in all, this section of the book is a useful reference for handling day to day enquiries on poisonous plants.

The chapter on sponges by Ronald Southcott is essentially a review of the author's research of the 1970's and a few biochemical works, some of which are inappropriate. The article and the bibliography seem to imply that there has been little recent work on sponge toxicology and chemical defense which is quite incorrect. A number of biochemical attributes of sponges are mentioned in the text but the accompanying black and white photographs are of little use.

The Coelenterates are covered in 5 chapters; 2 concerning the Hydrozoa, 2 for the jellyfish and 1 for anemones and corals. In the first section on the Hydrozoa, by Ronald Southcott, the text adequately covers the fern-like hydroids, 2 siphonophores, 1 medusa, and the hard millepore corals. Noticeably there is a diagram on nematocyst function but no corresponding text. The second hydrozoan section, by Joseph Burnett, Gary Calton and Ronald Southcott, solely concerns the Bluebottle or Portuguese Man-of-War. Bluebottle swarms account for 80% of reported marine stings and the animal and effect of its sting is here covered in detail. In this chapter there is a good description of nematocyst action which should have been linked to the diagram in the previous section. In order to find information on jellyfish the reader must consult 3 sections. Ronald Southcott's chapter entitled "Jellyfish of Medical Importance" covers the common stinging scyphozoan genera in our waters, and nematocysts are described again. Despite its title, this chapter, which contrary to common acceptance groups the Cubozoa as part of the Scyphozoa, does not deal with the box jellyfish at all, but indicates they will be covered in the next chapter. Readers of Bob Hartwick's section on the "The Box Jellyfish" expecting more than an account of the life cycle of *Chironex fleckeri* will be disappointed. The excellence of the account notwithstanding, is this the place for such a comprehensive description at the expense of the other problem box jellyfish? Fortunately, if the reader thinks to turn to the centre of the book, the Medical Review chapter provides data on these animals — but no pictures. The last Coelenterate section, on Anthozoa, is again by Southcott. With several somewhat surprising references it covers the stinging anemones and hard corals and coral abra-

sions. The captions for the 2 anemone photos are interchanged.

John Stanic's chapter, "Cone Shells", is a fairly balanced summary of the current knowledge in respect of the Australian fauna, with emphasis on the problems of identification and precautions to be taken due to the lack of knowledge on the potency of most cone toxins. A number of cones known to cause painful wounds are not mentioned, however.

Information on the Blue-ringed Octopus is presented by John Short and Darryl Potter, and adequately summarises the 2 known species and the effects in human envenomation. For some reason the book contains 4 photos (black and white) of *Hapalochlaena maculosa* and none of *H. lunulata*.

The section on echinoderms by David Exton covers the three classes with venomous species. For a condensed account the section on asteroids and holothurians is adequate. The section on echinoids includes two of the most widely recognized venomous genera although no mention is made of six other genera (*Echinothrix*, *Centrostephanous*, *Asthenosoma*, *Areosoma*, *Tripneustes*, *Heterocentrotus*, *Salmacis*) which also have venomous pedicellariae. Their omission is serious since treatment of injury caused by species of some of these genera differs from that described for *Diadema* and *Toxopneustes*. The statement concerning the echinoid *Phormosoma busarium* seems out of place since most people would never come across it, as it is only obtainable by dredging in deep water. The black and white photograph of a holothurian is a poor choice to demonstrate morphology and one would expect it to show the Cuvierian Tubules which it does not.

The chapter on crustacea by Lyndon Llewellyn and Peter Davie is an interesting account of the possible effects of unwise ingestion of unusual marine crustaceans and will provide most readers with all the information that they would wish to know. The random element, in species, locality and time, is emphasised and clearly any attempt to make your own bouillabaisse is fraught with risk. Eating unusual crabs is equivalent to Russian roulette with one bullet in one chamber, drinking the soup with one in every other chamber. Australians have probably been protected by their natural gastronomic

conservatism but are now becoming more experimental in their approach. The inherent dangers are well described, with the two types of poisoning, toxic and allergic, for which treatment is still largely symptomatic. The known toxins and allergens are discussed as are symptoms and recommended treatments. The numerous papers by Japanese workers imply the importance of crustacean toxicity in that country, perhaps the paucity of contributions by Australians is a good sign.

Venomous and poisonous fishes have six chapters to themselves. The first they share with other marine organisms in a very good summary by Clive Jones and Kurt Derbyshire of the risks to workers in trawl fisheries, (e.g. accidental envenomation, secondary infection, hypersensitivity), and notes on prevention. A key to the main groups of venomous fishes, with rather diagrammatic illustrations is then presented by Roland McKay, but it does not mention those juveniles which have venomous spines, such as the queenfish *Scomberoides*. The description and first aid notes for the east coast freshwater scorpionfish, the bullrout, by John Harris and John Pearn follows and it is both clear and complete (with an unusual spelling of picnickers).

Three chapters are devoted to ciguatera or fish poisoning, which is known from eastern Queensland and some parts of the N.T. Noel Gillespie gives a good, reasonably up-to-date summary of the problem and the paucity of published information on it in this country. His review of the possible origins of ciguatera which follows is more scholarly, and emphasises that research on ciguatera is continuing, with not all the answers known. Lewis' chapter unfortunately repeats most said by Gillespie, and gives a narrow view, that of southeast Queensland, in greater detail.

Colin Limpus has provided an historical perspective on a little known form of poisoning, that caused by ingesting sea turtles. Widely eaten, their flesh can occasionally be lethal to humans or other animals. The author has considered numerous medical aspects including toxicity, treatment and prevention of this problem which is caused by an unknown toxin, ciguatera-like in its erratic occurrence.

Two papers on sea snakes are presented in



the marine animals section. The first of these, also by Colin Limpus, describes the sea snake fauna, its distribution, life style and diet. The author then describes the toxicology, venom action, symptoms and first aid. The second paper is a short article by Shantay Zimmerman and Harold Heatwole on olive sea snake venom which is a simple series of experiments assaying the effects and toxicity of this venom. Both of these chapters could have been incorporated with the consideration of other snakes.

The medical review chapter by John Williamson, Peter Fenner and Chris Acott is an excellent summary of the medical aspects of marine envenomations and ciguatera poisoning. The article is slightly biased towards jellyfish which is most fortunate as it makes up for the deficiencies in the earlier section of box jellyfish. Yet again there is a section on nematocyst function, the stinger hot line number is no longer current and the reference to soft coral stings must be an error.

The first of the chapters dealing with insects is "Moths and butterflies" by Ronald Southcott. In Australia nearly all the ill-effects caused by these animals on humans are the result of contact with their caterpillars. "Social insects with antisocial behaviour" by Ted Dahms is very relevant to the northern Australian situation where a large range of stings by these creatures are reported all the year round. The major culprits are the introduced Italian bee, *Apis mellifera*, paper-nest wasps (*Polistes* and *Ropalidia*), various kinds of ants (*Formicidae*) including the northern Australian ubiquitous Green Tree Ant. The chapter on "Whiplash rove beetles" by Geoff Monteith and Chris Argent is particularly relevant to the Northern Territory as the skin lesions caused by rove beetles of the genus *Paederus* have recently been reported from Katherine, Palumpa and Peppimenarti.

"Mites" by Ronald Southcott is a detailed account of mites, a majority of which also occur in the N.T. as obligatory or incidental parasites on man, or carry infectious human diseases. The ensuing 3 articles are on spiders, starting with a very informative chapter "An easy guide to common spiders of the northeast and their allies" by Robert Raven and Julie Gallon. A majority of the common N.T. species may be keyed to genera by using this key. This chapter further provides

biological information and illustration for individual groups of spiders and their allies. The next two chapters, "The Redback spider" by the same authors as the previous chapter, and "Distribution of the funnel web spiders" by Mike Gray treat in detail the two best known Australian spider groups, the funnel web spiders incidentally do not occur in the N.T. The following chapter "Treatment of tick, scorpion and spider bites" by John Pearn provides very handy information for the layman. All in all the coverage is exhaustive, except for scorpions, ticks and centipedes, and one finds most of the common species encountered in the Northern Territory, particularly the Top End, covered in this book.

Frogs can provide a constant danger to the unwary, since most species possess defensive secretory glands in their skin. The secretions vary from being highly toxic to a minor irritant. Mike Tyler has provided an excellent overview of the types of skin secretions, their effects on man and other animals, and the treatment of the afflicted.

The venomous land snakes are introduced to us in a short article by Hal Cogger, who defines their distribution in terms of meteorological districts. Two excellent charts are also provided and these give a relatively straightforward means of identifying venomous and non-venomous species. The four chapters which follow are written by Julian White and deal with snake bite. These include: venom production and bite mechanisms, venom toxicity and actions, aspects of envenomation and management of bites. The chapters are well written, informatively illustrated and provide all the information you want to know about elapid snake bites. The last three chapters deal with particular groups of elapid species. Greg Mengden and Mark Fitzgerald show us the extraordinary diversity in the brown snakes and the difficulties of identifying them. John Pearn provides a description of the rough scaled snakes, the bite, effects of venom and treatment. Whereas, Jeanette Covacevich provides distributional and identification characteristics of the small-scaled snake and the taipan. All of the snake chapters are, however, of uneven quality with considerable variation in the amount of detail which is sometimes repetitive. One multiple author article would have been preferable.

The book concludes with Andrew Petrie's concise account of the role of Australian State and Territory Poison Information Centres and an interesting analysis of the numbers and variety of cases they deal with, which are shown to bear close resemblance to figures from the USA. Here it is also pointed out that such information is our best guide to the areas of greatest concern and yet the content of the book is curiously at odds with the statistics. About 8% of all cases handled are bites and stings and slightly less are from ingesting plants (and fungi). However, in the book 70 pages deal with plants whilst bites and stings claim 360. Of all bite and sting incidents only 1.5% are caused by snakes and yet 50% of this section, well over one third of the book, meticulously scrutinises every aspect of snake envenomation. In the whole book there are 48 coloured pictures of which 22 are snakes. In fact the illustrations are one of the book's weaknesses. A number of captions to black and white photographs still refer to coloured detail which indicates original plans were changed. Correspondingly the book's usefulness in promoting avoidance by recognition is severely reduced. The other fault is repetitiveness. The book is a compendium of separate articles and the editors have

been negligent in permitting extensive duplication which coupled with the huge editorial bias on snakes must have been at the expense of more coloured photographs. The volume contains a wealth of knowledge but finding all that pertains to a particular group is not as straightforward as it should be since related information is often split into separate chapters occasionally with misleading titles.

For \$24.95 it's a good book but it could have been a great book.

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### **Outrigger Canoes of Bali and Madura, Indonesia**

by Adrian Horridge

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In his introduction Adrian Horridge states that this "study of outrigger canoes is deliberately intended to be an interdisciplinary study". The subjects which the author sets out to cover are "canoe construction, perfor-

mance and history, canoe vocabulary and canoe ceremonies" (p. xii).

Primarily this volume provides an outstandingly detailed and technical description of the outrigger canoes of Bali, Madura and